

Use the sequence $3, 5 + 7 + 9 + 11 \dots$ to answer questions 1 - 3

1) Write an expression for the n^{th} term

$$3 + 2n$$

2) What is the 32^{nd} term?

$$3 + 2(32) \\ 3 + 64$$

$$67$$

3) What is the sum of the first 32 terms?

$$\frac{32(5 + 67)}{2}$$

$$1152$$

Use the sequence $2 + 6 + 18 + \dots + 13,122$ to answer questions 4 - 6

4) What is the value of r ?

$$\frac{6}{2} = 3$$

$$r = 3$$

5) What is the sum of the series?

$$S = \frac{2(1 - 3^9)}{1 - 3} \\ 2(3)^{x-1} = 13122 \quad \log_3 6561 = x - 1 \\ 3^{x-1} = 6561 \quad 8 = x - 1$$

$$S = 19682$$

6) What is the 6^{th} term?

$$2(3)^{6-1}$$

$$486$$

7) Find the infinite sum: $400 + 200 + 100 \dots$

$$\frac{400}{1 - .5} = \frac{400}{.5}$$

$$S = 800$$

8) Find the sum of the series $5 + 10 + 20 + 40 \dots + 5120$

$$5(2)^{n-1} \quad n = 11 \\ 5(2)^{n-1} = 5120 \quad \log_2 1024 = n - 1 \\ 2^{n-1} = 1024 \quad 10 = n - 1$$

$$S = \frac{5(1 - 2^{11})}{1 - 2}$$

$$S = 10235$$

State whether each series is arithmetic, geometric, or neither.

9) $2 + 5 + 11 + 20 + \dots$ neither

$$\begin{array}{ccc} \nearrow & \nearrow & \nearrow \\ +3 & +6 & +9 \\ \nearrow & \nearrow & \nearrow \\ \times 2.5 & \times 2.2 & \times 1.8 \end{array}$$

10) $-21 - 17 - 13 - 9 \dots$

$$\begin{array}{ccc} \nearrow & \nearrow & \nearrow \\ +4 & +4 & +4 \end{array}$$

~~geometric~~
arithmetic

11) $1 + 2 + 4 + 8 + 16 + \dots$ geometric

$$\begin{array}{ccc} \nearrow & \nearrow & \nearrow \\ \times 2 & \times 2 & \times 2 \end{array}$$

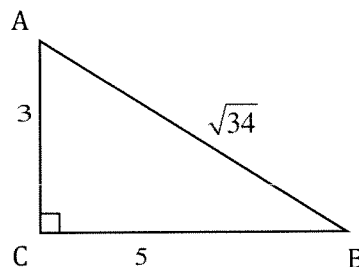
Chapter 13

Use the given triangle to find the following trig ratios.

1. $\cos A = \frac{3}{\sqrt{34}}$ 2. $\sec A = \frac{\sqrt{34}}{3}$

3. $\tan B = \frac{3}{5}$ 4. $\csc A = \frac{\sqrt{34}}{5}$

5. $\cot B = \frac{5}{3}$ 6. $\sec B = \frac{\sqrt{34}}{5}$



Solve the equation for $0^\circ \leq \theta < 360^\circ$ (be sure to give all solutions)

7. $\sin \theta = \frac{1}{2}$
 $\theta = 30^\circ, 150^\circ$

8. $\tan \theta = -\sqrt{3}$
 $\theta = 300^\circ, 120^\circ$

9. $\sqrt{2} \cos \theta = 1$
 $\cos \theta = \frac{1}{\sqrt{2}}$
 $\theta = 45^\circ, 315^\circ$

Use a calculator to solve for $0^\circ \leq \theta < 360^\circ$. (nearest degree)

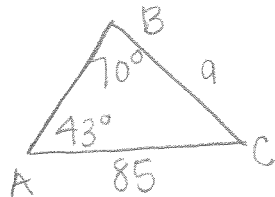
10. $\sin \theta = .82$
 $\theta = 55^\circ, 125^\circ$

11. $\cos \theta = -.293$
 $\theta = 107^\circ, 253^\circ$

12. $\tan \theta = \pm .22$
 $\theta = 12^\circ, 192^\circ$
 $\theta = 168^\circ, 348^\circ$

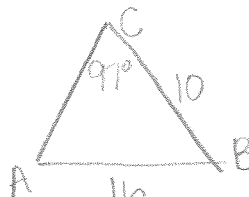
Find the indicated side or angle to the nearest tenth.

13. $\angle A = 43^\circ, \angle B = 70^\circ, b = 85, a = 61.7$



$\frac{\sin(70)}{85} = \frac{\sin(43)}{a}$
 $a = 61.7$

14. $\angle C = 97^\circ, a = 10, c = 16, \angle A = 38.3^\circ$



$\frac{\sin(A)}{10} = \frac{\sin(97)}{16}$
 $\sin(A) = .6203$

15. $a = 14, b = 10, c = 18, \angle A = 50.7^\circ$

$14^2 = 10^2 + 18^2 - 2(10)(18)\cos(A)$
 $-228 = -360\cos(A)$
 $.6333 = \cos(A)$

16. $\angle B = 53^\circ, a = 17, c = 12, b = 13.7$

$b^2 = 17^2 + 12^2 - 2(17)(12)\cos(53)$
 $\sqrt{b^2} = \sqrt{187.46}$

Solve each equation for x.

17. $x^2 - 7 = 18$
 $x^2 = 25$
 $x = 5, -5$

18. $4 + 7^{x-3} = 85$
 $7^{x-3} = 81$
 $\log_7 81 = x - 3$
 $2.26 = x - 3$
 $5.26 = x$

19. $x^2 - 14x + 40 = 0$
 $(x-10)(x-4) = 0$
 $x = 10, x = 4$

20. $3 + (x-7)^2 = 39$
 $(x-7)^2 = 36$
 $x-7 = \pm 6$
 $x = 13, 1$